Remarks

In response to the Office Action mailed on September 21, 2006 Applicants offer the following remarks. Further consideration of the application is respectfully requested.

Claim objections and rejections:

Claims 1 and 4 – 13 stand rejected under 35 USC 102(b) as being anticipated by Nakano et al. (US 5,404,315).

Claims 1 – 3, 14 – 16 and 18 – 21 stand rejected under 35 USC 102(e) as being anticipated by Saunders et al. (US 6,351,733).

Claim 17 stands rejected under 35 USC 103 as being unpatentable over Saunders et al. (US 6,351,733).

Rejections

Applicants submit that the claims are allowable as follows.

Claim 1 has been amended to specify that the set of metadata describing a statistical distribution of levels encountered in the audio track is used to derive at least two parameters of a transfer function. The transfer function is then used to derive a time-varying gain for to modifying the statistical distribution of levels of the audio track.

In Nakano, "The gain determining circuit 14 compares the average calculated by the average calculating circuit 13d with a prescribed standard amplitude, so as to calculate a gain coefficient based on the comparison...Only one gain coefficient is produced for a plurality of samplings...The gain control circuit 17 adjusts the gains of the sound signals to be reproduced by multiplying the sound signals sent from the decoding circuit 16 by the gain coefficient read every prescribed period from the semiconductor memory 15." (Col. 10 lns. 46 – 59."

That is, Nakano appears to be providing a type of automatic gain control or a single slope compression. As discussed in the current application from paragraph 56, such schemes may result in undesirable consequences, such as applying too large a gain to low levels having a low S/N ratio.

By deriving two parameters of a transfer function on a set of metadata describing a statistical distribution of levels encountered in the audio track, some of the undesirable consequences of prior schemes may be avoided.

As provided in MPEP 2131, to anticipate a claim, the reference must teach every element of the claim. Since Nakano does not teach at least the element discussed above, it is submitted that claims 1 – 13 are allowable.

Saunders discloses a system in which it is possible to adjust the "voice to remaining audio" (VRA) ratio by adjusting the vocal (speech) volume independently of the separate adjustment of the remaining audio volume (col. 1 lns 31 to 47). An initial "production mix" of this ratio is defined manually by a producer and provided together with the audio track, and the end user is permitted to override the original production mix to create a personalized VRA ratio (col. 17 lns. 16 – 45). The volume levels of both the voice and the remaining audio can be controlled. In order to permit this to be done, level information can be included, for example the output of a signal strength detector could provide an output that is time-synchronized to the actual audio, which can be used to control the volume level of each of the signals. Expansion and compression is also contemplated. (col. 18 lns. 1 – 12). To permit the user to adjust the VRA, volume knobs and position adjustments may be provided (col. 22 lns 35 – 41).

While Saunders states that volume control may be conducted, there is little disclosure regarding the specifics of how this may be accomplished. Based on the use of a signal level detector, volume control appears to be accomplished on an instantaneous signal value and not a statistical distribution of levels. Similarly, while Saunders states that compression or expansion may be conducted, no detail is provided as to how this is accomplished.

In particular, as regards claim 1, Saunders discloses neither deriving metadata describing a statistical distribution of levels encountered in an audio track, nor deriving at least two parameters of a transfer function from the metadata. In particular, it should be noted that the references quoted from Saunders in the Office Action, for example col. 23 ln. 48 to col. 24 ln. 6 and col. 26 ln. 40 to col. 4 (sic), while mentioning metadata, do not disclose the specific elements and limitations of the claims. Accordingly, since Saunders

does not disclose every element of claim 1, it is submitted that claims 1 – 13 are allowable over Saunders.

As far as claim 14 is concerned, Saunders discloses only that the volume level of each of the signals can be adjusted based on (instantaneous) level information, for example the output of a signal strength detector that is time-synchronized to the actual audio. Saunders does not disclose deriving a plurality of weighted loudness values for a plurality of audio frames in an audio segment or track and aggregating these weighted values to derive an overall loudness value. Accordingly, since Saunders does not disclose every element of claim 14, it is submitted that claims 14 – 17 are allowable over Saunders.

As regards claim 18, Saunders provides only volume adjustment based on (instantaneous) level information, for example the output of a signal strength detector that is time-synchronized to the actual audio. Nowhere does Saunders disclose obtaining original statistical frequency data for the audio track and then deriving test statistical frequency data by applying a test compression scheme. Saunders also does not derive an actual compression scheme from the original data and test data. Accordingly, since Saunders does not disclose every element of claim 18, it is submitted that claims 18 and 19 are allowable.

Finally, Saunders similarly does not disclose the limitations of claims 20 and 21, in which original statistical frequency data for an audio track has a compression scheme applied to it to obtain an estimate of statistical frequency data that would result from applying the compression scheme directly to the audio track. As discussed above, while Saunders does mention metadata and the use of a signal level to provide volume adjustment, Saunders does not disclose the specific elements and limitations of claims 20 and 21.

For the reasons set forth above, Applicants submit that this application is in condition for allowance and respectfully request that an early Notice of Allowance be issued in this case. If there are any queries, please contact the undersigned.

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Respectfully submitted,

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